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BOARD OF DIRECTION

Proceedings of the American Society of Civil Engineers

CONTENTS

August, 1957

Papers

Journal of the
BOARD OF DIRECTION
Proceedings of the American Society of Civil Engineers

THE 1957 ASCE SALARY SURVEY

ASCE Committee on Salaries
(Proc. Paper 1347)

This report constitutes the fourth in the biennial series of salary surveys conducted by the ASCE Committee on Salaries. Consonant with its commission in the By-Laws of the Society to, ". . . collect, codify and prepare for distribution such data as may be calculated to be of value to employers of civil engineers and to civil engineering employees in connection with the proper classification of engineering positions and equitable compensation for such services ", the Committee here presents the results of its 1957 survey.

Since the 1955 Salary Survey, engineering salaries have shown a marked increase. As in previous years, the greatest percent increases were recorded in the lower professional grades.* Unlike previous years, however, the percent increases remain relatively high up through Grade VIII. (Fig. 1). The range is from about 20 percent for Grade I to about 14 percent for Grade VIII. This is an indication that the pressures producing the upward trend of salaries, originally felt only in the immediate post-graduation levels are now being felt throughout the entire salary scale. It is interesting to note that the national average entrance rate to Grade I shows the greatest two-year increase in dollars since the Survey began (Fig. 2).

The pattern within the various categories of professional practice does not follow, however. While the increases shown in the consulting field generally parallel the national averages, those recorded in the municipal and county field climb sharply in the higher grades. On the other hand, upper grades in the construction, state highway, railroads, utilities and industries show increases of much lower order of magnitude than the lower grades.

Preprofessional

In the preprofessional grades the results vary considerably between areas of employment. Among construction firms, the increases shown for Grades A, B, and C were the highest of all grades. For consulting firms the percent increases for these grades were on a par with the professional grades. In all other categories the increases for the preprofessionals were lower than those shown for the initial professional grades. In the combined national figure,

Note: Discussion open until January 1, 1958. Paper 1347 is part of the copyrighted Journal of the Board of Direction of the American Society of Civil Engineers, Vol. 83, No. BD 1, August, 1957.

* See appendix for definitions of grades.

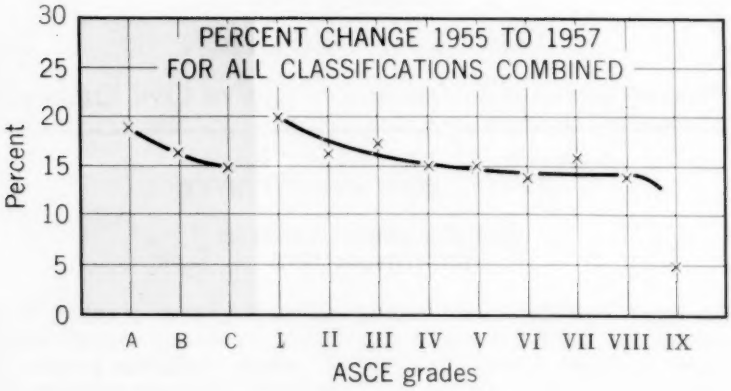

PERCENT CHANGE 1955 TO 1957
FOR ALL CLASSIFICATIONS COMBINED
Percent
30
25
20
15
10
5
0
A B C I II III IV V VI VII VIII IX
ASCE grades

Fig. 1

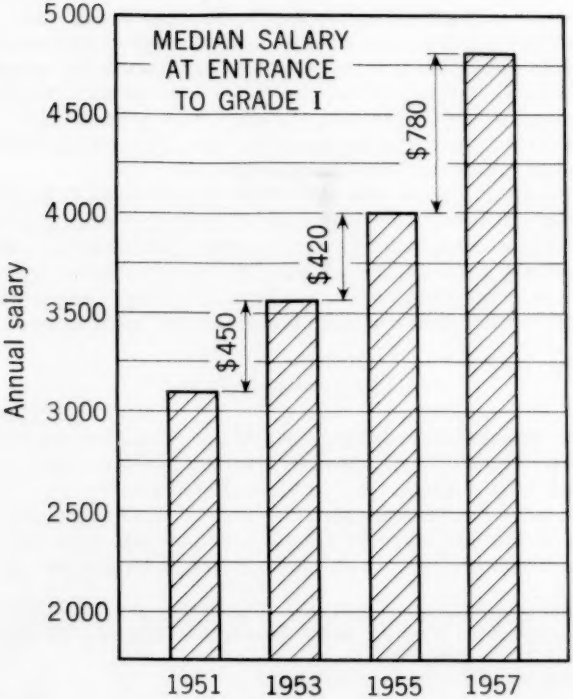

MEDIAN SALARY
AT ENTRANCE
TO GRADE I
Annual salary
5000
4500
4000
3500
3000
2500
2000
$450
$420
$780
1951
1953
1955
1957

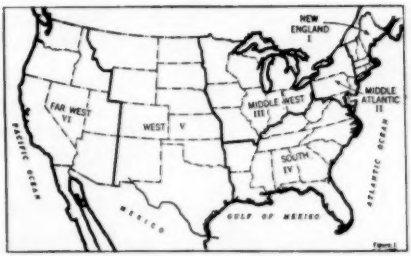
Fig. 2

the increases for Grades A, B, and C were equal in magnitude to the increases of Grades I, II, and III. (Fig. 1).

Education

Educational institutions showed percentage increases slightly lower than other areas of professional practice. They ranged from about 15 percent for the instructor grade to about 10 percent for heads of departments, Table VII and Figure 9. These percentages were based on salary rates adjusted to an eleven-month basis. No attempt was made to evaluate additional income from consulting, research or other extracurricular sources.

Regional Relationships



Calculations of regional relationships are based upon the average median figure for all categories of practice over the entire country, educational institutions and Federal rates excluded. It will be noted that the figures in Table I run slightly below 1.00 since the salaries of the national utilities, industries and railroads generally run above the national average and, of course, are not included in the regional figures. No attempt has been made to correlate index figures shown in Table I with the quarterly Engineering Salary Index because of the difference in survey methods. The base, or denominator, of the ESI is the sum of the minimum salaries for professional engineering grades GS 5, 7 and 9 for 1956 while the figures presented below are based on a national average. Further the characteristics of the firms canvassed for the ESI differ sufficiently to invalidate any direct correlation with the figures shown in Table I. However indices computed from the average median salaries in this report check closely with the ESI published in April 1957.

TABLE I - REGIONAL RELATIONSHIPS

Reg \ Grade	A	B	C	I	II	III	IV	V	VI	VII	VIII	IX
National	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
I	.81	.72	.80	.85	.90	.89	.89	.95	.99	.96	1.18	1.13
II	.93	.95	1.01	.99	1.04	1.06	1.05	1.04	1.03	.97	1.02	1.09
III	1.02	.99	.99	1.01	1.02	1.00	1.02	1.01	.98	1.03	.99	.99
IV	.92	.82	.86	.96	.84	.90	.88	.88	.93	.87	.82	.92
V	.89	.96	.98	.94	.99	.95	.92	1.02	.95	.94	.89	.84
VI	1.16	1.17	1.14	1.04	1.06	1.03	1.03	1.00	1.04	.99	.98	1.05

Basis of Survey

As in previous surveys returns were classified in six categories of professional activity. (Tables II - VII) These are:

Consulting firms
Contracting firms
State highway departments
Municipalities and counties
Educational institutions
Railroads, utilities, industries

The sixth category, has been tabulated separately as no regional breakdown is possible. No replies were solicited from Federal agencies since the civil service salary scale generally reflects Federal salaries throughout the country. The Federal Salary Rates are shown in Table VIII and Figure 10.

Within each of the first five categories listed above, the returns were further broken down into six geographical regions (Fig. 3) as follows:

I New England
II Middle Atlantic
III Middle West
IV South
V West
VI Far West

Inquiries were sent out to 877 organizations and returns were received from 297. The distribution by category is as follows:

	No. of Organizations		No. of Engineering Employees	
Consulting Firms	87		5331	
Construction Firms	31		551	
Railroads, Utilities and Industries	44		4404	
Total-private organizations		162		10286
State Highway Departments	35		34635	
Other governmental agencies	9		1078	
Total-public agencies		44		35713
Educational Institutions	91	91	1717	1717
Grand Total		297		47716

The return of 34 percent compares to a return of 38 percent in the 1955 Survey. The number of employees represented by the responding organizations, 47,716, is comparable to the 57,186 employees represented in the previous report. While the returns do not entirely duplicate the organizations reporting in 1955 the overlap is great enough to warrant the comparisons made.

In the survey, salaries are reported according to entrance rates and maximum rates for each of the ASCE professional grades. Within each grade, rates are given for the median, middle 50 percent and total range of the replies received. The median is that figure having 50 percent of the replies lower and 50 percent higher. No attempt was made to evaluate a median by number of employees. The middle 50 percent was determined by eliminating

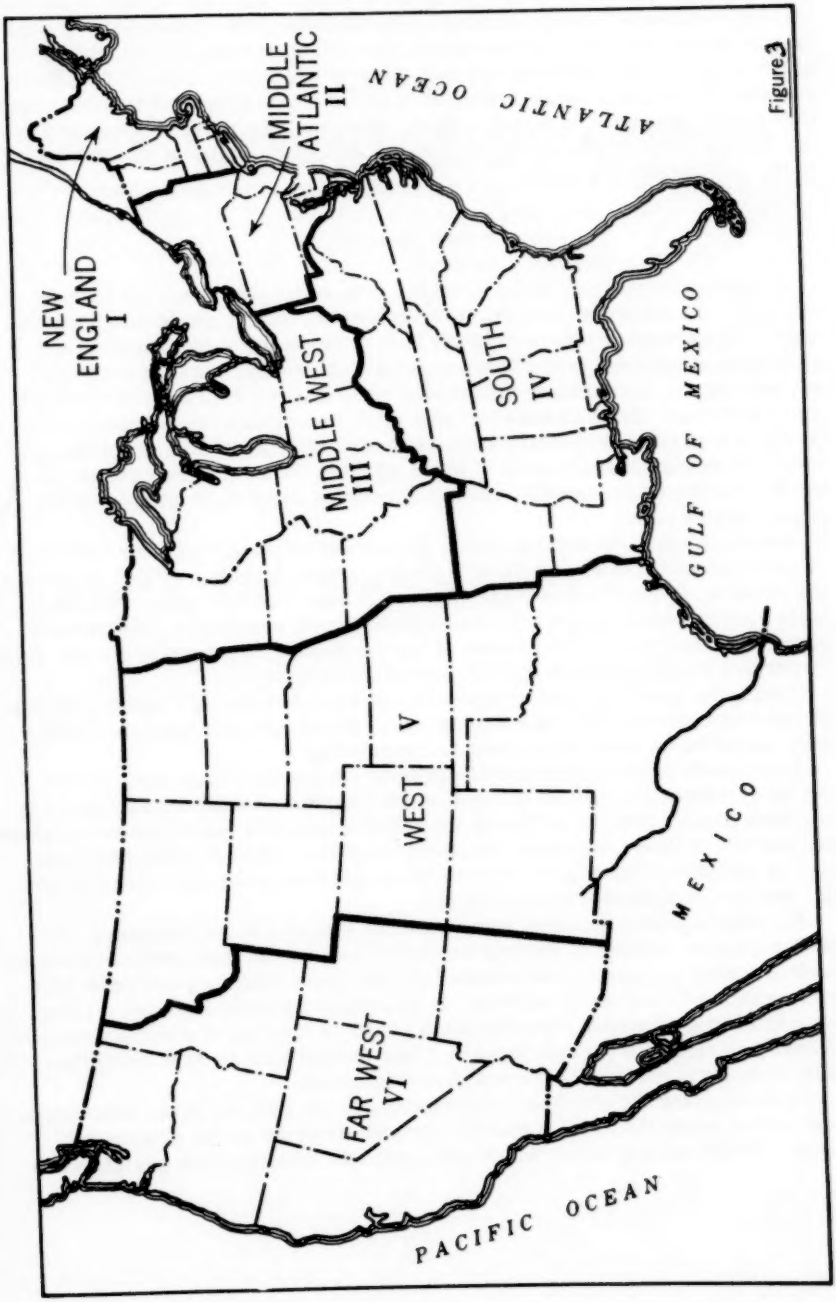

NEW ENGLAND I
MIDDLE ATLANTIC II
ATLANTIC OCEAN
MIDDLE WEST III
SOUTH IV
GULF OF MEXICO
WEST V
MEXICO
FAR WEST VI
PACIFIC OCEAN

Figure 3

the highest 25 percent and the lowest 25 percent. The total range reports the highest and lowest figure received for that grade. Since the reporting organizations do not necessarily have grade classification systems paralleling the ASCE grades it may be assumed that some of the widely divergent figures reported in the total range represent a misinterpretation of definition rather than a wide disparity in salary scales. However, the range represented by the middle 50 percent may be assumed to reflect an accurate interpretation of the defined ASCE grades.

Fringe Benefits

Fringe benefits while of material value to an employee are difficult to evaluate. This survey endeavored to encompass the following items which while not included in salary rates do have a monetary value; vacation and sick leave, bonus and profit sharing plans, retirement, health and life insurance plans. Educational institutions were also queried about sabbatical leave policies. Although an effort was made to evaluate these benefits in terms of a percent of annual pay the wide diversity in replies precluded statistically sound generalization of these figures. However, the figures did indicate that the fringe benefits roughly amounted to about 15 percent of the annual salary rate.

Among the private organizations, 76 percent of those reporting had bonus or profit sharing plans or both with profit sharing largely confined to the upper grades. In most cases these plans were on a variable scale with the higher percentages going to the more experienced employees. Retirement plans were reported by 32 percent of the responding organizations while about 60 percent reported health and life insurance programs.

Among the public organizations only one reported having a bonus plan but 89 percent reported retirement programs. Health and life insurance plans were reported on about 22 percent of the returns.

Retirement funds constituted the greater part of the fringe benefits received by educators, and 85 percent of the educational institutions reporting had such plans. One out of five of the schools reported health insurance plans and one out of three reported life insurance plans. Most schools had some sort of sabbatical leave program, the most common being one semester at full pay or two semesters at half pay.

All organizations reported some vacation and sick leave allowance. By far the largest number of returns reported from two to three weeks vacations. Some awarded as high as four weeks for employees with long service. Sick leave was most frequently reported on an as-needed basis although a large number of organizations reported plans based on accrual of a certain number of days per month of service (usually 1 per month) with 30 days being the most frequently mentioned maximum accumulation.

Vacation plans did not figure prominently in the reports of the educational institutions since the great majority reported salaries on the nine-month basis. Those few reporting ten-month contracts with teachers permitted one

month vacation. Also mentioned in the replies were the usual academic year vacations such as Christmas and Easter.

Conclusion

The Committee is grateful to all those who supplied basic data for this report. It is hoped that this one will prove as useful as the substantial response to the previous reports has indicated them to be. In accordance with present policy, the next Survey is planned for issuance in 1959.

Respectfully submitted:
ASCE Committee on Salaries

Donald H. Mattern, Chairman
Warren W. Parks, Vice Chairman
DeWitt C. Greer
Oscar S. Bray
Graham P. Willoughby

Note: Following are Tables II - XXI and Figures 4-10.

TABLE II - CONSULTING FIRMS

ASCE GRADE	ORGANIZATIONS REPORTING	ENTRANCE RATES				MAXIMUM RATES			
		MEDIAN	PERCENT INCREASE 1955-1957	MIDDLE 50%	TOTAL RANGE	MEDIAN	PERCENT INCREASE 1955-1957	MIDDLE 50%	TOTAL RANGE
A	65	$2900	16	$2680 3360	$2080 4680	$3850	19	$3510 4240	$2600 600
B	65	3660	17	3330 3920	2000 6000	4490	18	4100 4900	2500 7000
C	67	4300	17	3920 4660	2400 6900	5470	21	5060 5930	3000 9000
I	72	4510	15	4140 4960	3000 7000	5420	19	5020 5980	3800 8000
II	66	5100	14	4840 5330	3800 6300	6010	12	5760 6340	4200 7620
III	73	5900	15	5490 6120	4200 8700	6750	14	6600 7330	5000 9300
IV	73	6480	11	6140 6700	4200 8320	7710	13	7350 8070	5400 12000
V	70	7290	12	6720 7710	4500 10000	8750	7	7880 9440	5400 14000
VI	59	8290	12	7390 9160	5400 13390	9950	12	8930 11500	6600 15600
VII	56	9460	11	8530 11050	5000 15000	11160	3	10260 13240	6500 20000
VIII		10550	15	9270 12130	6500 25000	13690	15	12050 15510	7800 35000
IX		14380	12	12650 16430	7800 50000	19750	12	16770 25370	9100 60000

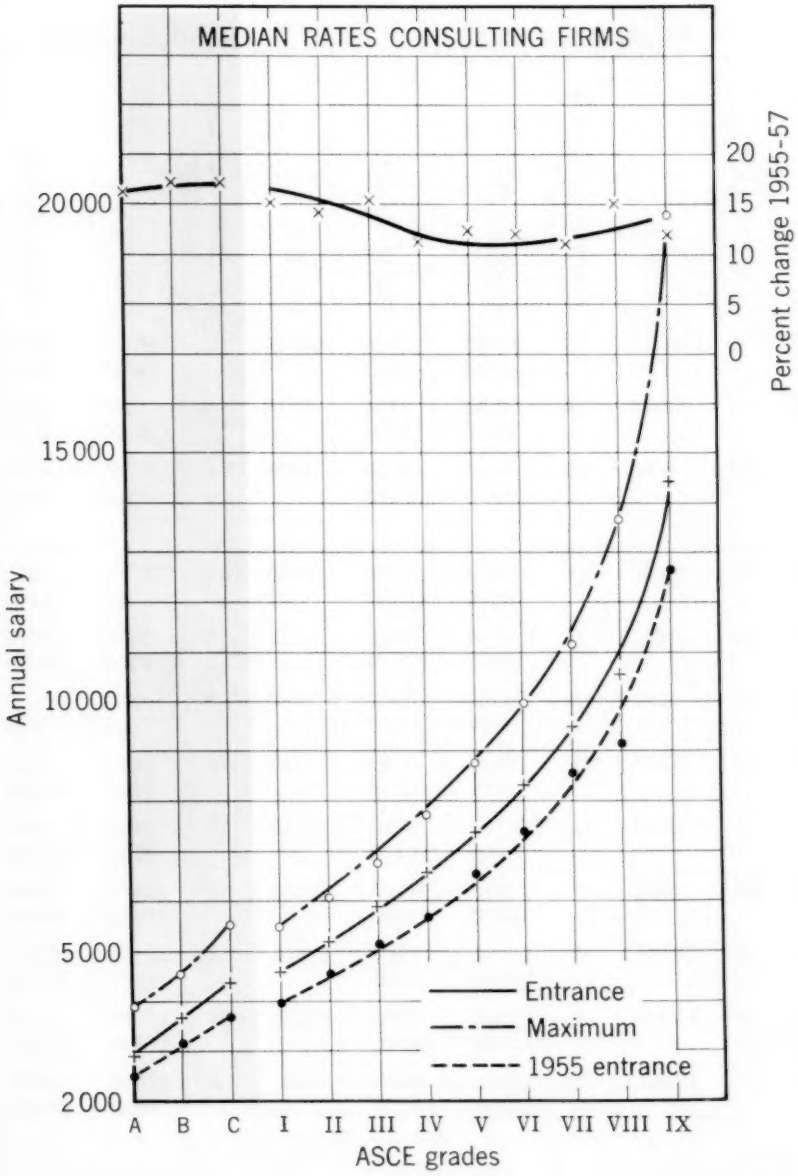

MEDIAN RATES CONSULTING FIRMS
Annual salary
20000
15000
10000
5000
2000
Percent change 1955-57
20
15
10
5
0
Entrance
Maximum
1955 entrance
A B C I II III IV V VI VII VIII IX
ASCE grades

Fig. 4

TABLE III - CONSTRUCTION FIRMS

ASCE GRADE	ORGANIZATIONS REPORTING	ENTRANCE RATES MEDIAN	PERCENT INCREASE 1955-1957	MIDDLE 50%	TOTAL RANGE	MAXIMUM RATES MEDIAN	PERCENT INCREASE 1955-1957	MIDDLE 50%	TOTAL RANGE
A	10	$4100	30	$3940 4260	$2700 5200	$4920	22	$4810 5020	$3600 6500
B	7	4310	16	4130 4490	2700 5600	5170	6	5170 5170	4500 6300
C	10	4860	10	4610 5110	3100 6550	5930	10	5740 6120	4800 7200
I	13	4630	13	4560 5030	2700 6600	5400	6	5230 5730	3380 8100
II	14	5200	6	4780 5860	3900 7800	6110	7	5880 6500	5000 10000
III	15	6020	10	5500 6400	4680 9000	7080	8	6830 7380	6000 9600
IV	16	7030	11	6760 7170	5400 10200	7680	2	7410 8200	6760 10800
V	9	8020	11	7880 8160	6000 10140	9450	11	9160 9730	8000 11180
VI	21	8590	7	8310 8870	6000 11180	10730	13	10170 11440	7800 15600
VII	8	10180	16	10000 10360	7200 11230	11280	2	10580 11990	8530 14560
VIII	8	11240	1	10720 11750	6300 20000	16050	18	14800 17300	8400 30000
IX	7	13300	-7	13000 13600	7200 18000	17680	0	17250 17850	9600 25000

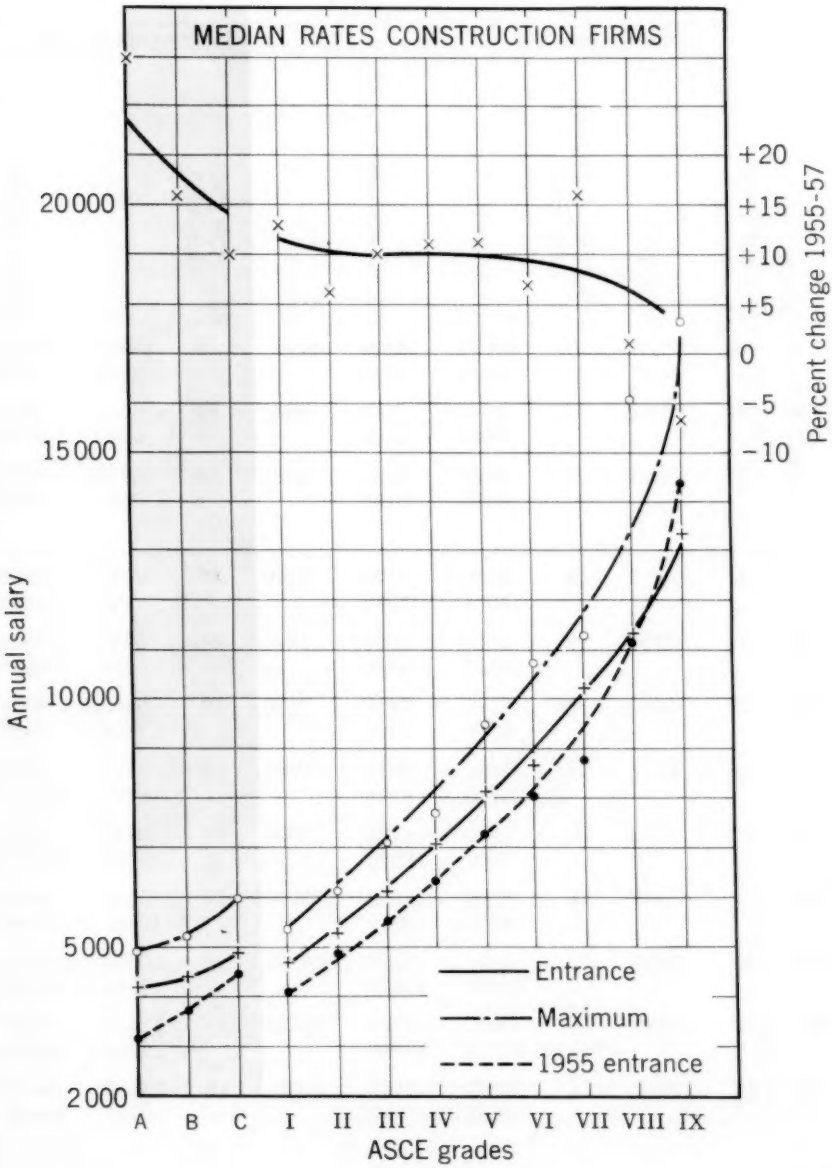

MEDIAN RATES CONSTRUCTION FIRMS
Annual salary
20000
15000
10000
5000
2000
Percent change 1955-57
+20
+15
+10
+5
0
-5
-10
Entrance
Maximum
1955 entrance
A B C I II III IV V VI VII VIII IX
ASCE grades

Fig. 5

TABLE IV - STATE HIGHWAY DEP'T.

ASCE GRADE	ORGANIZATIONS REPORTING	ENTRANCE RATES MEDIAN	PERCENT INCREASE 1955-1957	MIDDLE 50%	TOTAL RANGE	MAXIMUM RATES MEDIAN	PERCENT INCREASE 1955-1957	MIDDLE 50%	TOTAL RANGE
A	28	$2730	18	$2650 2920	$1800 3770	$3420	12	$3250 3680	$2100 4700
B	32	3340	20	3120 3480	2100 4300	4160	15	3930 4340	2650 5550
C	29	3950	22	3730 4250	2280 5100	4980	18	4670 5350	3380 6300
I	32	4610	24	4150 4810	2700 5230	5560	23	5070 5670	3630 6600
II	31	5150	25	4620 5390	3000 5850	6290	24	5740 6690	4000 7020
III	33	5660	17	5390 6270	3420 7200	7140	18	6460 7620	4380 8520
IV	34	6370	15	5850 6760	3810 8390	7870	16	7270 8220	4860 10100
V	31	7300	21	7000 7560	4720 10250	8820	18	8440 9360	5400 12220
VI		8230	18	7800 8940	4620 10950	10130	18	9540 10640	6000 13980
VII	30	9430	19	8400 10050	5100 13980	10940	8	10080 12200	6720 17840
VIII	26	10020	15	9690 10530	5700 13500	12150	15	11560 12780	7500 16030
IX	21	11530	11	10910 12470	8640 15600	13420	10	13180 14230	9240 18000

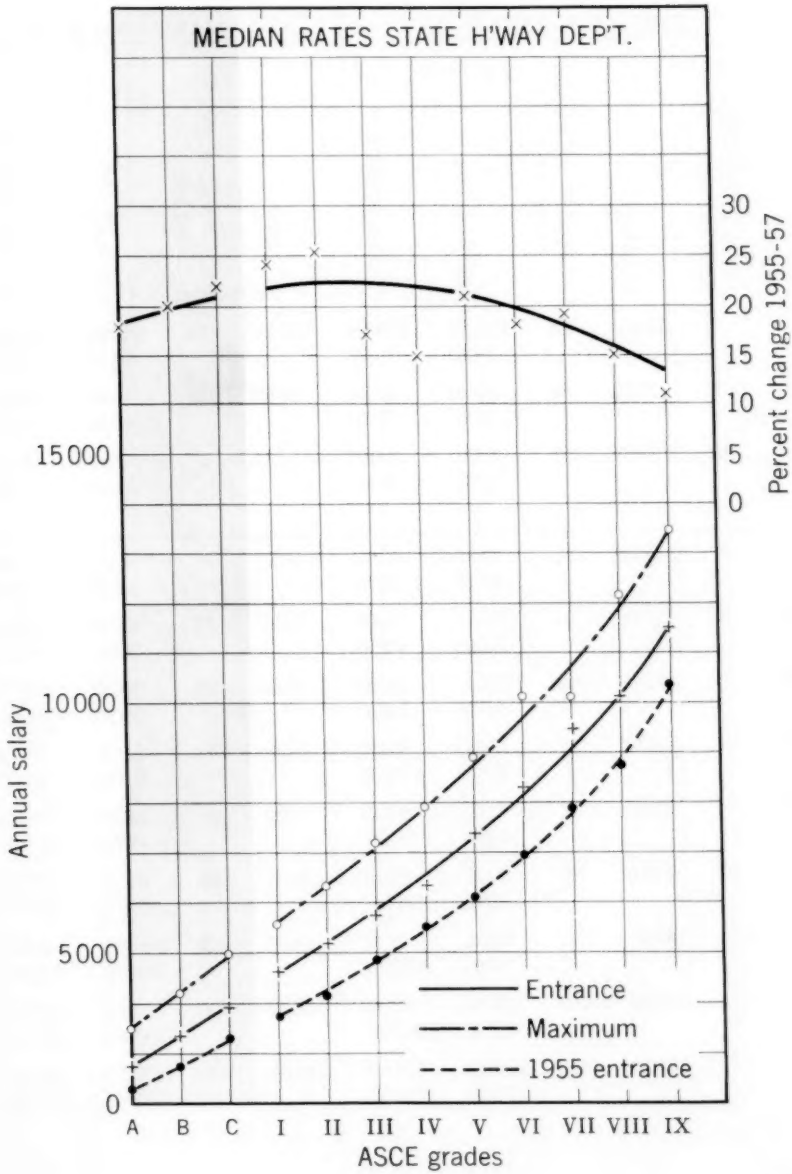

MEDIAN RATES STATE H'WAY DEP'T.
Annual salary
15000
10000
5000
0
Percent change 1955-57
30
25
20
15
10
5
0
Entrance
Maximum
1955 entrance
A B C I II III IV V VI VII VIII IX
ASCE grades

Fig. 6

TABLE V - MUNICIPALITIES AND COUNTIES

ASCE GRADE	ORGANIZATIONS REPORTING	ENTRANCE RATES				MAXIMUM RATES			
		MEDIAN	PERCENT INCREASE 1955-1957	MIDDLE 50%	TOTAL RANGE	MEDIAN	PERCENT INCREASE 1955-1957	MIDDLE 50%	TOTAL RANGE
A	7	$3380	21	$3350 3420	$2600 4350	$4060	24	$4020 4110	$3000 4700
B	8	3760	19	3580 3930	3200 4800	4550	25	4440 4650	3400 5200
C	9	4320	19	4320 4320	3400 5060	5130	17	5120 5140	4300 5780
I	7	4990	23	4930 5050	3900 5370	5850	24	5620 6090	5100 6500
II	8	5190	20	5190 5190	4200 6250	6430	27	6270 6590	5160 8110
III	7	6140	29	6140 6140	5400 6990	7540	33	7170 7920	6850 9090
IV	6	6750	28	6710 6790	6300 8120	8160	32	8130 8190	7760 9020
V	7	7090	23	7020 7160	6470 9290	8550	27	8550 8550	7920 10190
VI	6	8220	35	8100 8330	7120 10300	9930	35	9930 9930	9060 11430
VII	5	8820	28	8820 8820	7120 12160	10460	30	10460 10460	9060 14560
VIII		10640	33	10570 10710	8370 16200	11880	37	11830 11940	10030 19200
IX		13430	44	13090 13760	11150 25000	14330	31	13770 14890	11150 18180

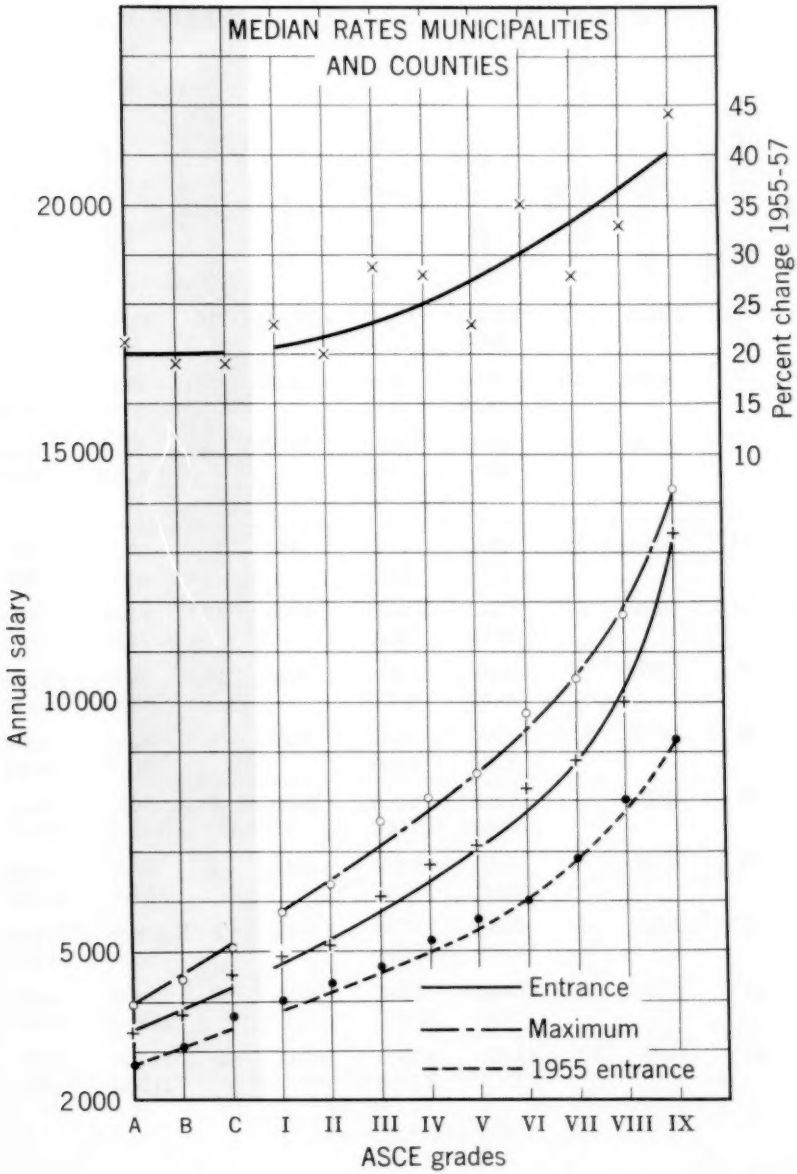

MEDIAN RATES MUNICIPALITIES
AND COUNTIES
Annual salary
20000
15000
10000
5000
2000
Percent change 1955-57
45
40
35
30
25
20
15
10
Entrance
Maximum
1955 entrance
A B C I II III IV V VI VII VIII IX
ASCE grades

Fig. 7

TABLE VI - RAILROAD, UTILITIES, AND INDUSTRIES

ASCE GRADE	ORGANIZATIONS REPORTING	ENTRANCE RATES				MAXIMUM RATES			
		MEDIAN	PERCENT INCREASE 1955-1957	MIDDLE 50%	TOTAL RANGE	MEDIAN	PERCENT INCREASE 1955-1957	MIDDLE 50%	TOTAL RANGE
A	26	$3400	9	$3200 3820	$2440 4470	$4190	16	$3900 4530	$3480 5150
B	29	4170	10	3600 4470	2800 5100	4920	11	4560 5280	4000 6600
C	28	4690	11	4220 4920	3550 6600	5700	8	5280 6390	4500 8400
I	24	5150	21	4800 5300	4200 6120	5950	17	5700 6490	5050 7680
II	27	5520	18	5210 5780	3600 6690	6790	17	6360 7260	4500 8100
III	29	6120	17	5760 6420	5090 8000	7900	17	7070 838-	5720 10500
IV	29	6980	11	6300 7200	4800 9200	8820	6	8040 9890	6000 12240
V	27	7920	11	7060 8480	6000 11000	9560	6	9000 10980	6600 12900
VI	23	8660	2	7680 9170	6000 13360	11160	2	9600 12340	17800 17490
VII	19	10260	9	9150 10800	7930 17090	12540	2	10800 15540	9680 21500
VIII	16	11700	4	10800 12736	7800 29400	13500	0	12060 15960	8400 31080
IX	15	14100	16	11400 18000	10000 33350	18000	-5	14400 21000	11460 36220

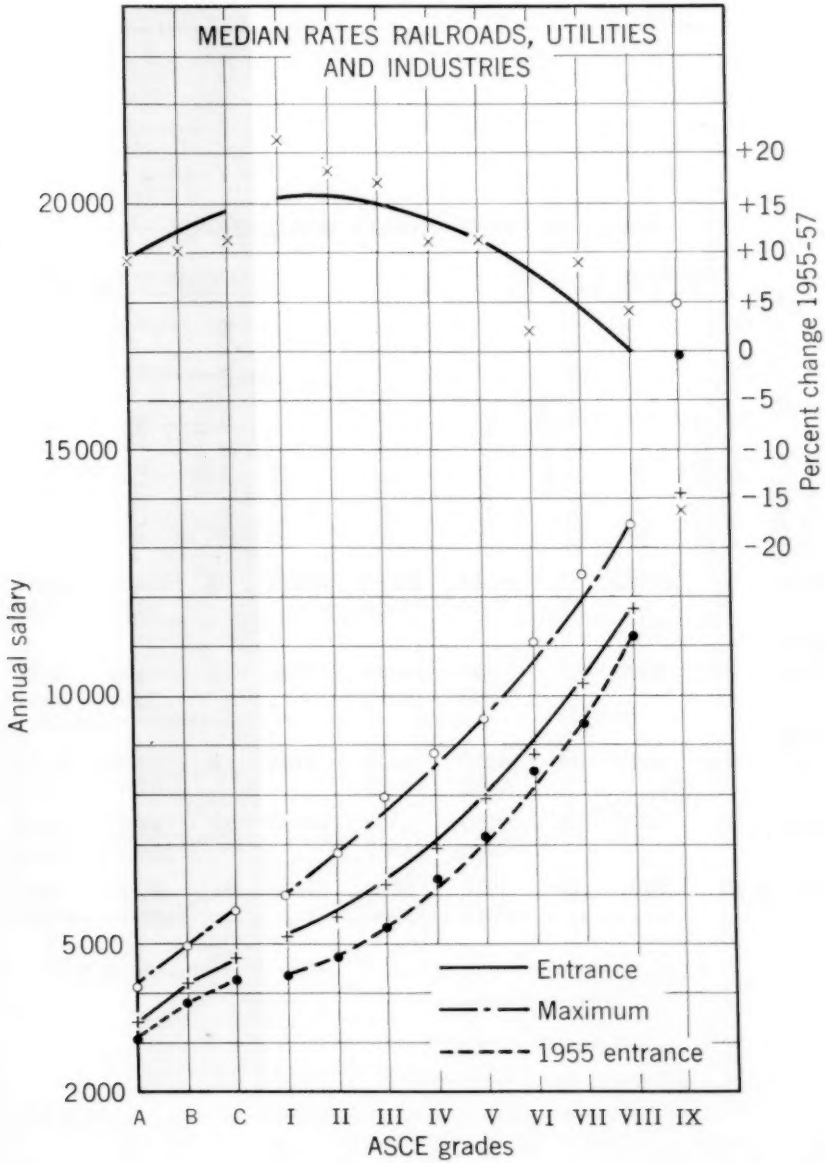

MEDIAN RATES RAILROADS, UTILITIES AND INDUSTRIES
Annual salary
20000
15000
10000
5000
2000
Percent change 1955-57
+20
+15
+10
+5
0
-5
-10
-15
-20
Entrance
Maximum
1955 entrance
A B C I II III IV V VI VII VIII IX
ASCE grades

Fig. 8

TABLE VII - EDUCATIONAL INSTITUTIONS

ASCE GRADE	ORGANIZATIONS REPORTING	ENTRANCE RATES				MAXIMUM RATES			
		MEDIAN	PERCENT INCREASE 1955-1957	MIDDLE 50%	TOTAL RANGE	MEDIAN	PERCENT INCREASE 1955-1957	MIDDLE 50%	TOTAL RANGE
Instr.	78	$4960	16	$4560 5270	$3660 6220	$5780	9	$5450 6170	$4500 7930
Asst. Prof.	88	5970	16	5480 6180	4400 8170	7020	9	6480 7540	5500 9160
Assoc. Prof.	88	6910	12	6370 7630	4950 10120	8180	8	7530 9230	6450 11600
Prof.	81	8070	11	7630 9660	5500 12200	10120	11	9300 12040	6750 22000
Dept. H.	59	9000	10	8230 10350	5500 18000	10870	11	9530 12370	7500 20000

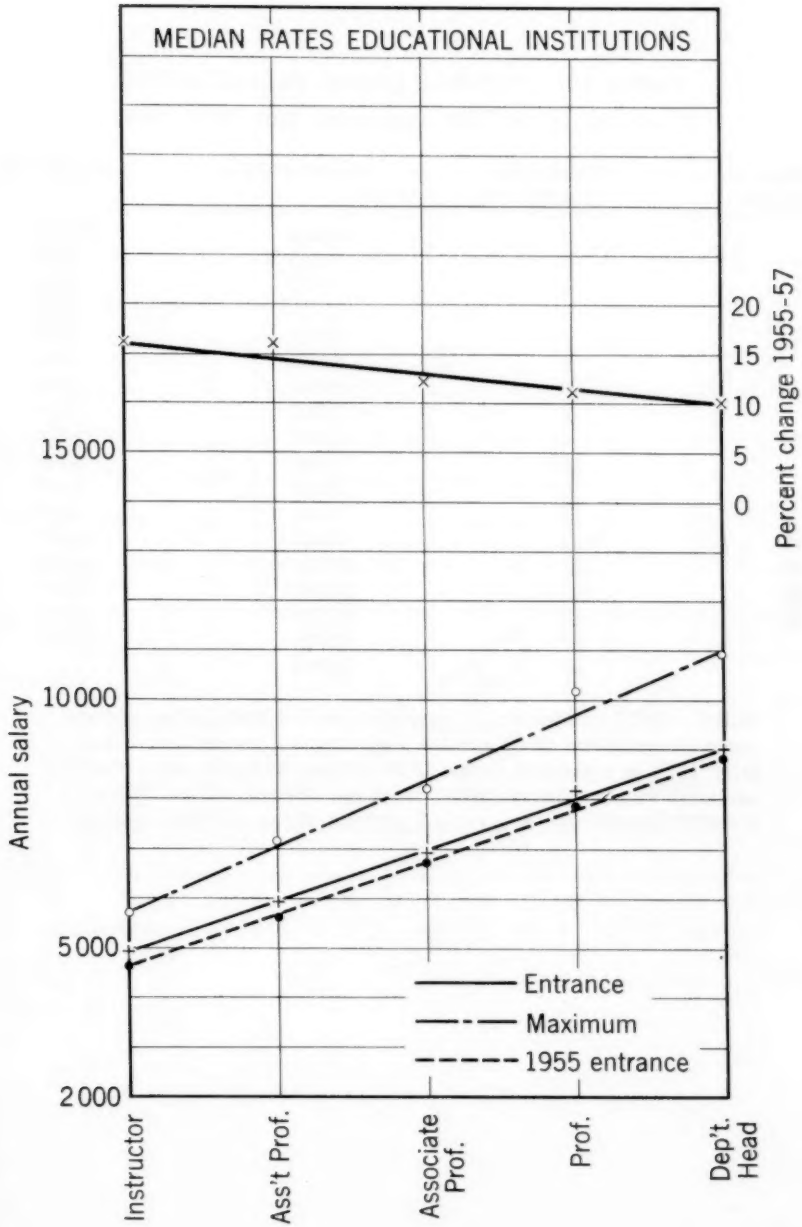

MEDIAN RATES EDUCATIONAL INSTITUTIONS
Annual salary
15000
10000
5000
2000
Percent change 1955-57
20
15
10
5
0
Entrance
Maximum
1955 entrance
Instructor
Ass't Prof.
Associate Prof.
Prof.
Dep't. Head

Fig. 9

TABLE VIII - FEDERAL ANNUAL SALARY RATES

(Classification Act 1949 as amended 1951, 1954, 1955)

ASCE GRADE	FEDERAL GRADE	ENTRANCE	MAXIMUM
	1	$2690	$3200
	2	2960	3470
	3	3175	3685
	4	3415	3925
I	5	3670	4480
	6	4080	4890
II	7	4525	5335
	8	4970	5780
III	9	5440	6250
	10	5915	6725
IV	11	6390	7465
V	12	7570	8645
VI	13	8990	10065
VII	14	10320	11395
VIII	15	11610	12690
IX	16	12900	13760
	17	13975	14620
	18	14800	-

NOTE: ASCE grades A,B,C, parallel the old SPS grades and are roughly equivalent to GS grades 1 through 6. No percent-change from 1955 is computed as the 1955 returns included some Federal agencies whose salaries differ from the Federal rates. However the 1957 figures are generally 7 percent above the 1955 figures.

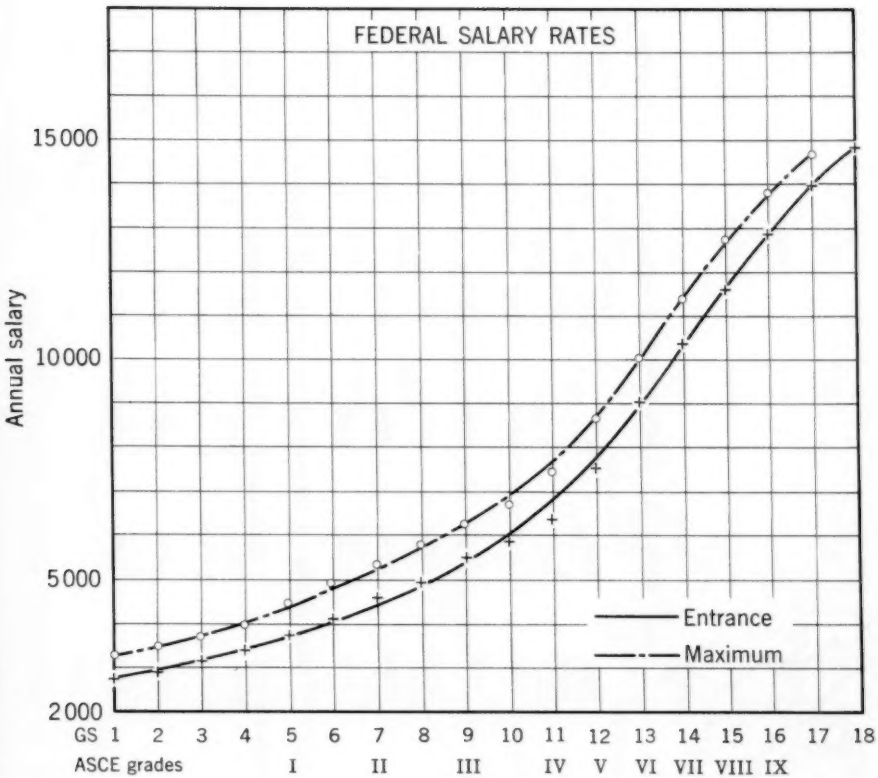

FEDERAL SALARY RATES
Annual salary
15000
10000
5000
2000
Entrance
Maximum
GS 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
ASCE grades I II III IV V VI VII VIII IX

Fig. 10

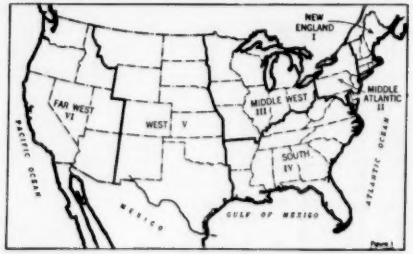


TABLE IX - COMPARISONS OF MEDIAN RATES BY REGIONS - GRADE A

Region (See Fig. 1)	Consultants Entr.	Consultants Max.	Contractors Entr.	Contractors Max.	Highway Depts. Entr.	Highway Depts. Max.	Munic. & Counties Entr.	Munic. & Counties Max.
I	$3000	$4000	$ -	$ -	$2200	$2730	$ -	$ -
II	3000	3820	3310	4080	2840	3600	2920	3960
III	3000	4200	3600	4050	2790	3570	4350	4710
IV	2400	3000	5200	6500	2330	2920	2730	3290
V	2760	3390	3300	3900	2850	3600	-	-
VI	3260	4700	5100	6050	3370	4100	3540	4290

TABLE X - COMPARISONS OF MEDIAN RATES BY REGIONS - GRADE B

Region (See Fig. 1)	Consultants Entr.	Consultants Max.	Contractors Entr.	Contractors Max.	Highway Depts. Entr.	Highway Depts. Max.	Munic. & Counties Entr.	Munic. & Counties Max.
I	$2910	$3950	$ -	$ -	$2580	$3180	$ -	$ -
II	3620	4680	3430	4680	3570	4420	3370	4580
III	3800	4700	4200	4800	3370	4020	4270	4580
IV	3040	3900	-	-	2816	3780	3290	4040
V	3380	4160	4000	4900	3600	4380	-	-
VI	4200	5550	5620	6300	4090	4970	4090	4080

TABLE XI - COMPARISONS OF MEDIAN RATES BY REGIONS - GRADE C

Region (See Fig. 1)	Consultants Entr.	Consultants Max.	Contractors Entr.	Contractors Max.	Highway Depts. Entr.	Highway Depts. Max.	Munic. & Counties Entr.	Munic. & Counties Max.
I	$3950	$4990	$ -	$ -	$3020	$3740	$ -	$ -
II	4180	5510	4680	5980	4460	5440	4090	5310
III	4700	5800	4200	5100	3930	5250	4920	5160
IV	3770	4590	-	-	3840	4790	3730	4560
V	4000	5300	4580	5700	4140	4920	-	-
VI	5200	6600	5980	6950	4340	5730	4540	5490

TABLE XII - COMPARISONS OF MEDIAN RATES BY REGIONS - GRADE I

Region (See Fig. 1)	Consultants Entr.	Consultants Max.	Contractors Entr.	Contractors Max.	Highway Depts. Entr.	Highway Depts. Max.	Munic. & Counties Entr.	Munic. & Counties Max.
I	$4320	$5620	$3750	$4000	$4020	$4890	$ -	$ -
II	4800	5700	4000	5200	4790	57[illegible]	4990	6120
III	4800	5780	5000	5500	5040	5900	4880	5380
IV	3750	4700	5200	6240	4500	5700	-	-
V	4800	5100	-	-	4500	5170	-	-
VI	4600	5620	5200	6080	4810	5900	5100	6060

TABLE XIII - COMPARISONS OF MEDIAN RATES BY REGIONS - GRADE II

Region (See Fig. 1)	Consultants Entr.	Consultants Max.	Contractors Entr.	Contractors Max.	Highway Depts. Entr.	Highway Depts. Max.	Munic. & Counties Entr.	Munic. & Counties Max.
I	$5040	$6080	$4000	$5000	$4920	$6006	$ -	$ -
II	5400	6480	5000	6000	5330	6670	5590	7480
III	5480	6600	5150	6000	5250	6460	5480	6440
IV	4160	4850	-	-	4800	5880	4210	5160
V	5100	5400	5950	6900	5160	5880	-	-
VI	5400	6640	5900	6660	5410	6880	5460	6640

TABLE XIV - COMPARISONS OF MEDIAN RATES BY REGIONS - GRADE III

Region (See Fig. 1)	Consultants Entr.	Consultants Max.	Contractors Entr.	Contractors Max.	Highway Depts. Entr.	Highway Depts. Max.	Munic. & Counties Entr.	Munic. & Counties Max.
I	$5920	$6880	$5000	$6000	$4920	$6450	$ -	$ -
II	6300	7240	6500	7800	6200	7670	6200	7970
III	6600	7200	5400	6600	6020	7310	6420	7600
IV	4850	6000	6000	7000	5100	6720	-	-
V	5400	6000	6700	7620	5520	6700	-	-
VI	6300	7200	6510	7490	6170	8020	5800	7040

TABLE XV - COMPARISONS OF MEDIAN RATES BY REGIONS - GRADE IV

Region (See Fig. 1)	Consultants Entr.	Consultants Max.	Contractors Entr.	Contractors Max.	Highway Depts. Entr.	Highway Depts. Max.	Munic. & Counties Entr.	Munic. & Counties Max.
I	$5880	$7340	$6380	$7380	$5570	$6920	$ -	$ -
II	6900	8320	7500	8320	7330	9070	6470	7930
III	7160	8280	6500	7100	6780	8320	7280	8690
IV	6000	7540	-	-	5520	6810	-	-
V	5950	6600	7200	7500	6130	7355	-	-
VI	7000	8170	7590	8110	6880	8750	6510	7860

TABLE XVI - COMPARISONS OF MEDIAN RATES BY REGIONS - GRADE V

Region (See Fig. 1)	Consultants Entr.	Consultants Max.	Contractors Entr.	Contractors Max.	Highway Depts. Entr.	Highway Depts. Max.	Munic. & Counties Entr.	Munic. & Counties Max.
I	$6550	$8220	$8190	$9190	$6540	$8550	$ -	$ -
II	7800	9600	8000	9100	8720	10790	6730	7930
III	8100	9050	6500	8500	7830	9420	7960	9500
IV	7050	8400	-	-	6120	7200	6630	8200
V	6450	7640	10140	11180	7020	7920	-	-
VI	7800	9600	7280	9300	7540	9050	7040	8560

TABLE XVII - COMPARISONS OF MEDIAN RATES BY REGIONS - GRADE VI

Region (See Fig. 1)	Consultants Entr.	Consultants Max.	Contractors Entr.	Contractors Max.	Highway Depts. Entr.	Highway Depts. Max.	Munic. & Counties Entr.	Munic. & Counties Max.
I	$7900	$10000	$10000	$11000	$7320	$9245	$ -	$ -
II	8400	10800	8400	10400	10195	12180	7560	9060
III	9000	10000	6600	9000	8280	9840	9400	11380
IV	7710	9100	7500	12000	7030	8850	-	-
V	7340	8900	10090	10980	7500	8760	-	-
VI	9360	10900	8940	10980	9020	11900	7690	9350

TABLE XVIII - COMPARISONS OF MEDIAN RATES BY REGIONS - GRADE VII

Region (See Fig. 1)	Consultants Entr.	Consultants Max.	Contractors Entr.	Contractors Max.	Highway Depts. Entr.	Highway Depts. Max.	Munic. & Counties Entr.	Munic. & Counties Max.
I	$10000	$11440	$10400	$10400	$7900	$9780	$ -	$ -
II	10500	12000	10000	12000	11770	8580	7120	9060
III	10050	12000	8100	10500	10200	11700	10800	12900
IV	8700	10200	-	-	8400	9000	-	-
V	8150	9300	11180	11980	8760	9800	-	-
VI	9360	12000	11230	11540	9550	11400	8560	9130

TABLE XIX - COMPARISONS OF MEDIAN RATES BY REGIONS - GRADE VIII

Region (See Fig. 1)	Consultants Entr.	Consultants Max.	Contractors Entr.	Contractors Max.	Highway Depts. Entr.	Highway Depts. Max.	Munic. & Counties Entr.	Munic. & Counties Max.
I	$11750	$14250	$12000	$24000	$10200	$14140	$ -	$ -
II	12000	18000	11200	15000	11260	13510	8370	10040
III	10500	13000	8750	12000	10080	11760	14160	15960
IV	9560	9900	-	-	9000	10200	10400	10400
V	9300	12000	-	-	9150	10350	-	-
VI	10200	15000	13000	13200	10440	12950	9620	11140

TABLE XX - COMPARISONS OF MEDIAN RATES BY REGIONS - GRADE IX

Region (See Fig. 1)	Consultants Entr.	Consultants Max.	Contractors Entr.	Contractors Max.	Highway Depts. Entr.	Highway Depts. Max.	Munic. & Counties Entr.	Munic. & Counties Max.
I	$20000	$25600	$ -	$ -	$ 9360	$11440	$ -	$ -
II	15000	19100	16800	25000	13870	15650	11150	11150
III	14400	16800	10000	15000	11670	15000	16200	16920
IV	12000	19600	-	-	11000	11400	-	-
V	10800	12000	12000	16300	10500	12000	-	-
VI	14100	25400	14400	14400	12800	15000	12920	14920

TABLE XXI - COMPARISONS OF MEDIAN RATES BY REGION - EDUCATIONAL INSTITUTIONS

Region (See Fig. 1)	Instructor		Asst. Prof.		Assoc. Prof.		Professor		Head of Dept.	
	Entr.	Max.	Entr.	Max.	Entr.	Max.	Entr.	Max.	Entr.	Max.
I	$5140	$5970	$5980	$7220	$6600	$8300	$7320	$10600	$8550	$11160
II	4880	5840	6000	7320	7040	8380	8290	10210	9020	12000
III	5120	6100	6050	7000	7110	8550	8500	10880	9380	12000
IV	4840	5660	5840	6720	6800	7930	7570	9400	8980	10120
V	4880	5480	5840	6840	6720	7690	7930	9160	8550	9500
VI	4910	5660	6100	7020	7210	8220	8800	10450	9520	10430

ASCE CLASSIFICATION OF CIVIL ENGINEERING POSITIONS

When it is desired to ascertain the relative levels of professional civil engineering positions, they should be classified according to the relative importance of duties to be performed and responsibilities incident thereto. In this report, as in previous ones, a general specification has been established for each classification. These specifications describe the duties and requirements usually associated with the classifications and the qualifications expected of the persons who perform the work and discharge the specified responsibilities.

Preprofessional Grades

Following are the descriptive "Classifications for Preprofessional Grades" in the form submitted with the questionnaire:

Grade A positions are to include employees who are able, under supervision, with little or no previous experience, to assist with simple routine engineering work in field or office.

Typical tasks are to serve in the field as chainman or flagman, in the office, to index and file plans and survey books, to copy engineering data, to make simple arithmetical calculations or to check and plot level notes.

Grade B positions are to include employees who are able, under supervision, to do the simpler types of preprofessional engineering work in office, laboratory and field, not necessarily requiring professional engineering training but requiring some experience.

Typical tasks are to serve as rodman on survey or construction work, to make simple survey or construction notes, to do simple level and transit work, to perform simple routine testing, or to do simple engineering office work including arithmetical calculations.

Grade C positions are to include employees who are able, under supervision to do engineering work somewhat more difficult than that required in Grade B, in office, laboratory, or field, not necessarily requiring professional engineering training but requiring qualifying experience.

Typical tasks are to make graphs and charts, to perform ordinary engineering computations, to make and check survey and construction notes, to make routine construction drawings, to do level and transit work, to make routine inspections on construction work, or to make routine tests of the properties of soils or materials of construction.

The requirements for Grade C are such that there is likely to be some overlapping with respect to those for Grade I of the ASCE professional grade series. Employees at the top of this classification (Grade C) may have graduated from college or possess a reasonably equivalent combination of education and experience. Such men are considered to be in preprofessional work with the full expectation of advancing into a professional grade. Differentiation between these "preprofessional" employees and "subprofessional" employees is based on the premise that the latter do not possess qualifications that will permit them to progress up the ladder of the professional grades.

Professional Grades

The nine ASCE professional grade specifications, adopted in 1946, are based, grade for grade, on statements published by the U. S. Civil Service Commission regarding its professional grades formerly indentified as "P-1" through "P-9," and since October 1949 identified (without other change) as "GS-5, 7, 9, 11, 12, 13, 14, 15, and 16." In each case the "GS" number or grade designation is shown following the comparable ASCE grade description.

It is expected that in applying this plan to organizations which do not have employees in all the nine classifications, due consideration will be given to the appropriate relationship of the various positions which exist in such organizations, and the duties and responsibilities of such positions.

Also, in large organizations where engineering training is considered desirable for the managerial staff men with engineering training and experience will occupy positions which are not primarily engineering in character. These positions many times will carry salaries that are compensation in part for managerial functions. Such positions should not be assigned to engineering grades. The responsible engineering head of a large organization will in general be considered to be in Grade IX.

These classifications include all classes of positions, the duties of which are to perform operational, creative, advisory, administrative, or research work which is based on the established principles of the civil engineering profession. The fundamental prerequisite for every position to be classified in these grades is professional, scientific, or technical training equivalent to that represented by graduation from a college or university of recognized standing.

Grade I includes all positions, which involve, under immediate supervision, the performance of fundamental civil engineering duties requiring professional training but little or no experience. (Federal GS-5)

Grade II includes all positions which involve, under immediate or general supervisions, individually or with a small number of subordinates, the performance of civil engineering duties requiring professional training, pervious experience, and to a limited extent the exercise of independent judgment. (Federal GS-7)

Grade III includes all positions which involve, under general supervision individually or with a number of subordinates, the performance of civil engineering duties of substantial difficulty and responsibility, requiring professional training, previous experience, and independent judgment. (Federal GS-9)

Grade IV includes all positions which involve, under general supervision, individually or with a number of subordinates, the performance of difficult civil engineering duties or the supervision of a subdivision of an engineering organization, requiring professional training, previous experience, reognized leadership, and independent judgment. (Federal GS-11)

Grade V includes all positions which involve, under general supervision, individually or with a number of subordinates, the performance of difficult civil engineering duties or the supervision of a division of an engineering organization, or the direction of a staff on investigative studies, research and testing, design, or construction, requiring professional training, previous experience, recognized leadership, and independent judgment. (Federal GS-12)

Grade VI includes all positions which involve, under general direction, individually or with a number of subordinates, the performance of difficult

civil engineering duties or the supervision of a division of an engineering organization, or acting as the principal assistant to the head of a division of a large engineering organization or the direction of a staff on investigative studies, design or construction requiring professional training, successful experience in engineering work. (Federal GS-13)

Grade VII includes all positions which involve, under general direction, individually or with a number of subordinates, the performance of important civil engineering duties or the supervision of a division of a large engineering organization, or the direction of a staff on investigative studies, design or construction, requiring professional training, extensive successful experience in engineering work with demonstrated aptitude and capacity for increased responsibilities in managerial and executive functions. (Federal GS-14)

Grade VII includes all positions, such as:

a) the assistant to the technical and administrative head of an important engineering organization; or

b) the technical and administrative head of a lesser engineering organization; or

c) positions involving the development, analysis, and evaluation, for final executive action, of difficult and complex engineering projects with respect to their feasibility, cost, economic justification, and public necessity or convenience. (Federal GS-15)

Grade IX includes all positions, such as:

a) the administrative and professional head of an important engineering organization with full authority and responsibility for conceiving and executing all the plans and functions of the organization, directing an administrative and professional engineering staff engaged in varied important projects; or

b) positions requiring highly specialized professional engineering or scientific ability. (Federal GS-16)

The duties of faculty members in educational institutions are not such as to fit into the foregoing classifications. Therefore, as will be noted in Table VII and Fig. 9, returns were requested on the basis of salaries for Instructor, Assistant Professor, Associate Professor, Professor and Head of Department.

PROCEEDINGS PAPERS

The technical papers published in the past year are identified by number below. Technical-division sponsorship is indicated by an abbreviation at the end of each Paper Number, the symbols referring to: Air Transport (AT), City Planning (CP), Construction (CO), Engineering Mechanics (EM), Highway (HW), Hydraulics (HY), Irrigation and Drainage (IR), Pipeline (PL), Power (PO), Sanitary Engineering (SA), Soil Mechanics and Foundations (SM), Structural (ST), Surveying and Mapping (SU), and Waterways and Harbors (WW), divisions. Papers sponsored by the Board of Direction are identified by the symbols (BD). For titles and order coupons, refer to the appropriate issue of "Civil Engineering." Beginning with Volume 82 (January 1956) papers were published in Journals of the various Technical Divisions. To locate papers in the Journals, the symbols after the paper numbers are followed by a numeral designating the issue of a particular Journal in which the paper appeared. For example, Paper 1113 is identified as 1113 (HY6) which indicates that the paper is contained in the sixth issue of the Journal of the Hydraulics Division during 1956.

VOLUME 82 (1956)

AUGUST: 1034(HY4), 1035(HY4), 1036(HY4), 1037(HY4), 1038(HY4), 1039(HY4), 1040(HY4), 1041(HY4)[c], 1042(PO4), 1043(PO4), 1044(PO4), 1045(PO4), 1046(PO4)[c], 1047(SA4), 1048 (SA4)[c], 1049(SA4), 1050(SA4), 1051(SA4), 1052(HY4), 1053(SA4).

SEPTEMBER: 1054(ST5), 1055(ST5), 1056(ST5), 1057(ST5), 1058(ST5), 1059(WW4), 1060(WW4), 1061(WW4), 1062(WW4), 1063(WW4), 1064(SU2), 1065(SU2), 1066(SU2)[c], 1067(ST5)[c], 1068 (WW4)[c], 1069(WW4).

OCTOBER: 1070(EM4), 1071(EM4), 1072(EM4), 1073(EM4), 1074(HW3), 1075(HW3), 1076(HW3), 1077(HY5), 1078(SA5), 1079(SM4), 1080(SM4), 1081(SM4), 1082(HY5), 1083(SA5), 1084(SA5), 1085(SA5), 1086(PO5), 1087(SA5), 1088(SA5), 1089(SA5), 1090(HW3), 1091(EM4)[c], 1092 (HY5)[c], 1093(HW3)[c], 1094(PO5)[c], 1095(SM4)[c].

NOVEMBER: 1096(ST6), 1097(ST6), 1098(ST6), 1099(ST6), 1100(ST6), 1101(ST6), 1102(IR3), 1103 (IR3), 1104(IR3), 1105(IR3), 1106(ST6), 1107(ST6), 1108(ST6), 1109(AT3), 1110(AT3)[c], 1111(IR3)[c]; 1112(ST6)[c].

DECEMBER: 1113(HY6), 1114(HY6), 1115(SA6), 1116(SA6), 1117(SU3), 1118(SU3), 1119(WW5), 1120(WW5), 1121(WW5), 1122(WW5), 1123(WW5), 1124(WW5)[c], 1125(BD1)[c], 1126(SA6), 1127 (SA6), 1128(WW5), 1129(SA6)[c], 1130(PO6)[c], 1131(HY6)[c], 1132(PO6), 1133(PO6), 1134(PO6), 1135(BD1).

VOLUME 83 (1957)

JANUARY: 1136(CP1), 1137(CP1), 1138(EM1), 1139(EM1), 1140(EM1), 1141(EM1), 1142(SM1), 1143(SM1), 1144(SM1), 1145(SM1), 1146(ST1), 1147(ST1), 1148(ST1), 1149(ST1), 1150(ST1), 1151(ST1), 1152(CP1)[c], 1153(HW1), 1154(EM1)[c], 1155(SM1)[c], 1156(ST1)[c], 1157(EM1), 1158 (EM1), 1159(SM1), 1160(SM1), 1161(SM1).

FEBRUARY: 1162(HY1), 1163(HY1), 1164(HY1), 1165(HY1), 1166(HY1), 1167(HY1), 1168(SA1), 1169(SA1), 1170(SA1), 1171(SA1), 1172(SA1), 1173(SA1), 1174(SA1), 1175(SA1), 1176(SA1), 1177(HY1)[c], 1178(SA1), 1179(SA1), 1180(SA1), 1181(SA1), 1182(PO1), 1183(PO1), 1184(PO1), 1185(PO1)[c].

MARCH: 1186(ST2), 1187(ST2), 1188(ST2), 1189(ST2), 1190(ST2), 1191(ST2), 1192(ST2)[c], 1193 (PL1), 1194(PL1), 1195(PL1).

APRIL: 1196(EM2), 1197(HY2), 1198(HY2), 1199(HY2), 1200(HY2), 1201(HY2), 1202(HY2), 1203 (SA2), 1204(SM2), 1205(SM2), 1206(SM2), 1207(SM2), 1208(WW1), 1209(WW1), 1210(WW1), 1211(WW1), 1212(EM2), 1213(EM2), 1214(EM2), 1215(PO2), 1216(PO2), 1217(PO2), 1218 (SA2), 1219(SA2), 1220(SA2), 1221(SA2), 1222(SA2), 1223(SA2), 1224(SA2), 1225(PO)[c], 1226 (WW1)[c], 1227(SA2)[c], 1228(SM2)[c], 1229(EM2)[c], 1230(HY2)[c].

MAY: 1231(ST3), 1232(ST3), 1233(ST3), 1234(ST3), 1235(IR1), 1236(IR1), 1237(WW2), 1238(WW2), 1239(WW2), 1240(WW2), 1241(WW2), 1242(WW2), 1243(WW2), 1244(HW2), 1245(HW2), 1246 (HW2), 1247(HW2), 1248(WW2), 1249(HW2), 1250(HW2), 1251(WW2), 1252(WW2), 1253(IR1), 1254(ST3), 1255(ST3), 1256(HW2), 1257(IR1)[c], 1258(HW2)[c], 1259(ST3)[c].

JUNE: 1260(HY3), 1261(HY3), 1262(HY3), 1263(HY3), 1264(HY3), 1265(HY3), 1266(HY3), 1267 (PO3), 1268(PO3), 1269(SA3), 1270(SA3), 1271(SA3), 1272(SA3), 1273(SA3), 1274(SA3), 1275 (SA3), 1276(SA3), 1277(HY3), 1278(HY3), 1279(PL2), 1280(PL2), 1281(PL2), 1282(SA3), 1283 (HY3)[c], 1284(PO3), 1285(PO3), 1286(PO3), 1287(PO3)[c], 1288(SA3)[c].

JULY: 1289(SM3), 1290(EM3), 1291(EM3), 1292(EM3), 1293(EM3), 1294(HW3), 1295(HW3), 1296(HW3), 1297(HW3), 1298(HW3), 1299(SM3), 1300(SM3), 1301(SM3), 1302(ST4), 1303 (ST4), 1304(ST4), 1305(SU1), 1306(SU1), 1307(SU1), 1308(ST4), 1309(SM3), 1310(SU1)[c], 1311(EM3)[c], 1312(ST4), 1313(ST4), 1314(ST4), 1315(ST4), 1316(ST4), 1317(ST4), 1318 (ST4), 1319(SM3)[c], 1320(ST4), 1321(ST4), 1322(EM3), 1323(AT1), 1324(AT1), 1325(AT1), 1326(AT1), 1327(AT1), 1328(AT1)[c], 1329(ST4)[c].

AUGUST: 1330(HY4), 1331(HY4), 1332(HY4), 1333(SA4), 1334(SA4), 1335(SA4), 1336(SA4), 1337(SA4), 1338(SA4), 1339(CO1) 1340(CO1), 1341(CO1), 1342(CO1), 1343(CO1), 1344(PO4), 1345(HY4), 1346(PO4)[c], 1347(BD1), 1348(HY4)[c], 1349(SA4)[c], 1350(PO4), 1351(PO4).

c. Discussion of several papers, grouped by Divisions.

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